



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

170163

NOV 01 2002

REPLY TO THE ATTENTION OF

MEMORANDUM

SUBJECT: ACTION MEMORANDUM - Request for a Emergency Removal Action at the Chicago Radiation Source Site, Cook County, Illinois (Site ID #B54A)

FROM: Thomas D. Cook, On-Scene Coordinator
Emergency Response Branch - Section 3

TO: Rick Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this memorandum is to document your prior verbal approval to expend up to \$25,850 in order to mitigate threats to public health, welfare, and the environment at the Chicago Radiation Source Site in the city of Chicago, Illinois, and to document oral approval of a \$15,000 response cost ceiling provided by you on July 13, 2002. This response action is necessary to mitigate the immediate threat to public health and the environment posed by a radium source.

The Chicago Radiation Source Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # ILN000508501

A. Physical Location and Description

The Chicago Radiation Source site is located at the intersection of Michigan avenue and 14th Street in a parking lot for the METRA Rail Service of Chicago. The site consists of gravel parking lot which is fenced on all sides. Immediately to the east is the METRA rail line, to the north and south are more lots and rail related operations, and to the east is a residential development.

In Illinois, the low-income percentage is 27 and the minority % is 25. To meet the EJ concern criteria, the area within 1 mile of the site must have a population that's twice the state low income percentage or/and twice the state minority percentage. That is, the area must be at least 54% low-income and/or 50% minority. At this site, the low-income percentage is 57% and the minority is 98% as determined by Arcview or Landview III EJ analysis. Therefore, this site does meet the region's EJ criteria based on demographics as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998".

B. Site Background:

On July 13, 2002, On-Scene Coordinator (OSC) Thomas Cook, U.S. EPA Health Physicist Jim Mitchell, along with Weston Solutions, Inc. (Weston) Superfund Technical Assessment and Response Team (START) contractor Greg Gehrig, investigated the site focusing on the detected radiation and emergency removal of the radiation source. Also present at the time of the investigation were Emergency Response and Restoration Service (ERRS) Contractor Furgeson Harbor with Response Manager Tom Rhinebolt and three laborers, Sara Lopez and John Cardinal of the Federal Bureau of Investigation (FBI), Gerald Gels of Signal Corporation Emergency Response Team (ERT), Jim Ursic of U.S. EPA Field Services Section Emergency Response Branch. Representatives of METRA and their consultant, Camp, Dresser, and McGee, were also present. The radiation source was previously identified to be a radium-226 (radium) point source near the surface. The exact nature and discovery of the source was unknown.

At 0730 a health and safety briefing was held by U.S. EPA Mitchell. A perimeter around the source was established, with a background exposure rate reading of 6 micro-roentgens per hour ($\mu\text{R/hr}$) at that perimeter. U.S. EPA Ursic performed a survey using an EM-61 High Sensitivity Metal Detector to identify whether a metallic object may be associated with the radiation source and to possibly approximate source depth. The metal survey showed a high background due to power lines in close proximity, but showed no metallic objects associated with the source. A mini bobcat excavator was then brought in to carefully unearth the source. This activity was performed with U.S. EPA Mitchell overseeing operations. The source was located at approximately 1 foot below the ground surface, which was identified as a medical application needle filled with radium salt. The source was later determined to be a 8.2 milli-curie source. The needle was secured in a lead pig, which was further secured in a 15-gallon salvage drum, which was further secured in a 55-gallon salvage drum. Once the needle was removed, no readings above area background were detected in the excavation area. Three additional soil samples were collected from the excavation surrounding the needle for later analysis to confirm no residual radium contamination was present. The 55 gallon drum with the source inside was surveyed and placarded according to DOT regulations. The secured source and samples were transported to Argonne National

Laboratory, Argonne, Illinois by U.S. EPA Mitchell and ERRS. Real-time electronic dosimeters were provided to responders entering the exclusion zone to monitor individual external exposures. The average external exposure recorded and received by responders was below 1.0 milli-rem.

Once at Argonne, The source activity was accurately determined to be 8.2 milli-curies. Eventually, the radium source will be disposed of at the Hanford Nuclear Reservation in Richland, Washington. The results of the three samples sent to Argonne for analysis were determined to be less than 1 pico-curie/gram, which is consistent with area radium background concentrations and confirmed that no radium was released to the environment.

III. THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at Chicago Radiation Source Site present an imminent and substantial threat to the public health, or welfare, and the environment and meet the criteria for a removal action provided for in the National Contingency Plan (NCP), Section 300.415, Paragraph (b)(2). 40 CFR § 300.415(b)(2)(i), specifically allow removal actions for:

- 1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

The 8.2 milli-curie source posed a external radiation hazard to general public. Prior to the sources removal, at the surface of the ground, the gamma exposure rate was measured at 500 milli-roentgens per/hour. This is approximately 500,000 times the local background measured value. The radium posed an external as well as an internal hazard. The strong external gamma radiation associated with several short-lived decay products of radium-226 and radium-228 makes external exposure a concern. Lead shielding of this source was needed to bring down the radiation hazard to response workers. The majority of epidemiological data on health effects of radium-226 and radium-228 in humans comes from studies of radium dial painters, radium chemists, and the technicians exposed through medical procedures in the 1900s. These studies, as well as studies on animals, indicate that chronic exposures to radium can induce bone sarcomas. The minimum latency period is seven years after the first exposure, but tumors can continue to appear throughout a lifetime. A radioactive source of that strength and type is a known carcinogen and mutagen.

IV. ENDANGERMENT DETERMINATION

Given the site conditions, the nature of the hazardous substances on site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

The OSC undertook the following actions to mitigate threats posed by the presence of the radiation source

- 1) Developed and implemented a site health and safety plan;
- 2) Developed and implemented an air monitoring program;
- 3) Developed and implemented a site security plan and contingency plan;
- 4) Removed and properly disposed of (in accordance with U.S. EPA's Off-Site Rule [40 CFR § 300.440]) radium source.

Removal activities required 1 on-site day to complete. The threats posed by identified Radiation source materials meet the criteria listed in Section 300.415(b)(2) of the NCP and are consistent with any removal action which may be required.

The OSC has initiated planning for provision of post-removal site control consistent with the provisions of Section 300.415(l) of the NCP. The nature of this removal action, complete removal of radium source and any contaminated media from the site, will eliminate the need for any post-removal site control.

The detailed cleanup contractor cost estimate is presented in Attachment 1 and estimated project costs are summarized below:

REMOVAL PROJECT CEILING ESTIMATE

EXTRAMURAL COSTS:

Cleanup Contractor	\$19,000
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Subtotal	\$20,000
Total START	<u>3,000</u>
Extramural Subtotal	\$23,000
 TOTAL EXTRAMURAL COSTS	 \$23,000
<u>INTRAMURAL COSTS:</u>	
U.S. EPA Direct Costs \$30 X [(30 Regional Hours)+ 10 HQ Hours]	\$ 900
U.S. EPA Indirect Costs \$65 X (30 Regional Hours)	<u>\$ 1,950</u>
TOTAL INTRAMURAL COSTS	\$ 2,850 =====
TOTAL REMOVAL PROJECT CEILING ESTIMATE	\$25,850

The response actions described in this memorandum directly address the actual or threatened release at the site of a hazardous substance, or of a pollutant, or of a contaminant which may pose an imminent and substantial endangerment to public health or welfare or to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements

All applicable, relevant, and appropriate requirements (ARARs) were complied with to the extent practicable. Any State ARARs identified in a timely manner for this removal action will be complied with to the extent practicable. All hazardous substances, pollutants, or contaminants removed off site pursuant to this removal action for treatment, storage, and disposal were treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-site Rule, 40 CFR § 300.440, 58 Federal Register 49215 (September 22, 1993).

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

VII. OUTSTANDING POLICY ISSUES


NONE

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this site is contained in the Enforcement Confidential Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Chicago Radiation Source Site developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan (NCP). This decision is based upon the Administrative Record for the site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. The total project ceiling, if approved, will be \$32,675. Of this, an estimated \$29,375 was used for cleanup contractor costs. You may indicate your decision by signing below.

APPROVE:  ^{RK} DATE: 11/01/02
Branch Chief, Superfund Division

DISAPPROVE: _____ DATE: _____
Branch Chief, Superfund Division

Enforcement Addendum

Attachments

1. Detailed Cleanup Contractor Cost Estimate
2. Administrative Record Index
3. EJ Analysis map

cc: R. Worley, U.S. EPA, 5202-G (For internal use only)

**PAGE 7 HAS BEEN REDACTED AS IT CONTAINS A
BCC LIST NOT RELEVANT TO THE REMOVAL
ACTION.**

**THE ENFORCEMENT ADDENDUM FOR THE
CHICAGO RADIATION SOURCE RECOVERY SITE
HAS BEEN REDACTED AS IT IS NOT RELEVANT TO
THE REMOVAL ACTION.**

ATTACHMENT 1

DETAILED CLEANUP CONTRACTOR ESTIMATE
CHICAGO RADIATION SOURCE SITE
CHICAGO, COOK COUNTY, ILLINOIS
AUGUST 2001

The estimated cleanup contractor costs necessary to complete the removal action at the chicago radiation source site are as follows:

Personnel/ Equipment/Materials	\$9,871
Transportation and Disposal	<u>\$10,000</u>
TOTAL	\$19,871

ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY REMOVAL ACTION

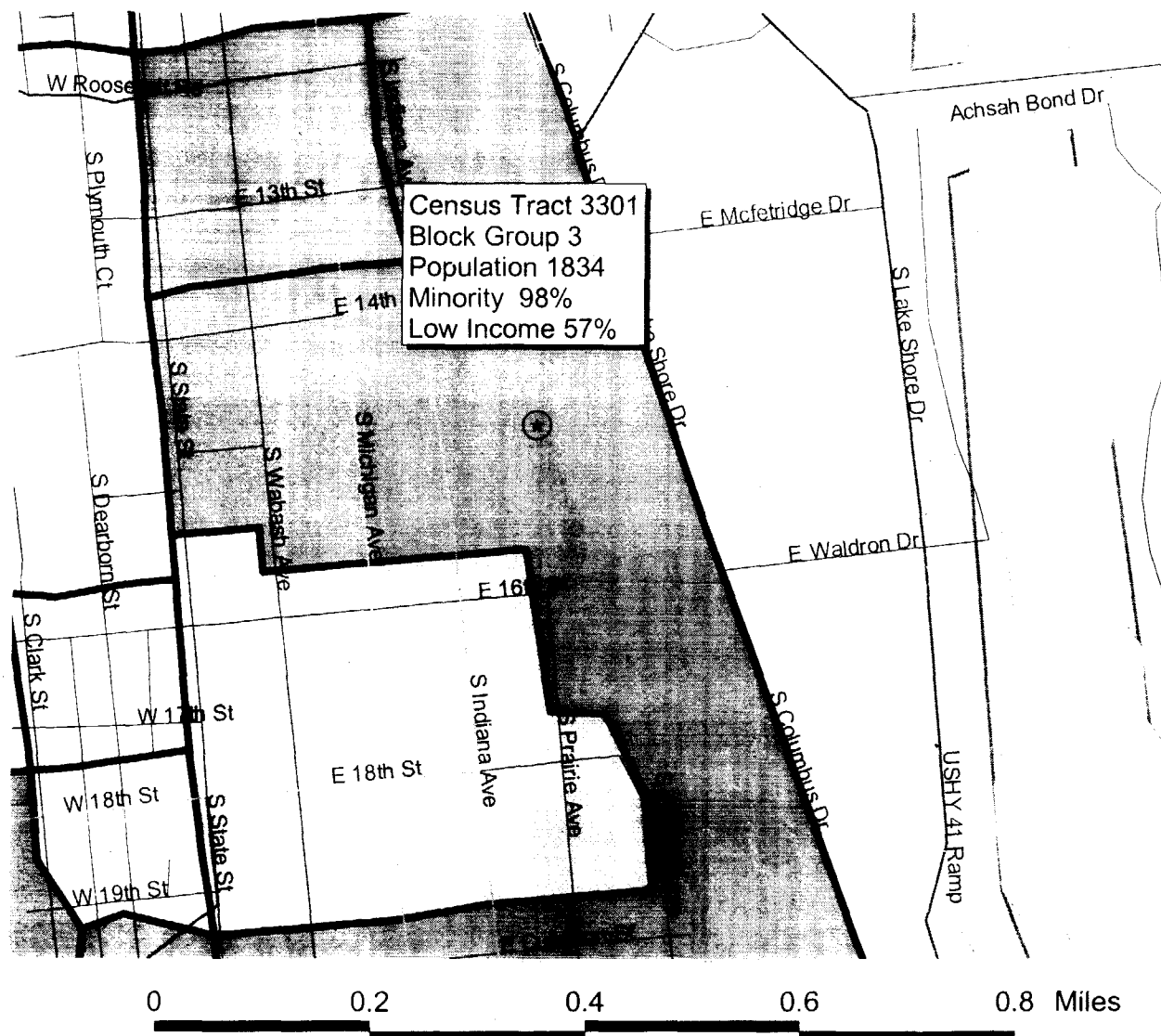
ADMINISTRATIVE RECORD FOR CHICAGO RADIATION SOURCE SITE CHICAGO, COOK COUNTY, ILLINOIS

ORIGINAL
SEPTEMBER 27, 2002

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	00/00/00	Cook, T., U.S. EPA	Karl, R., U.S. EPA	Action Memorandum: Request for an Emergency Removal Action at the Chicago Radiation Source Site (PENDING)	

Region 5 Superfund EJ Analysis

Chicago Radiation Source Site Chicago, IL



EJ Identification

Low Income and Minority Less than State Average

Low Income or Minority at or Greater than State Average

Low Income or Minority 2 Times or Greater than State Average
[meets Region 5 EJ Case criteria]

★ Site Location

■ Block Group Boundary

Region 5 EJ Case Criteria for Illinois

Minority: 50% or greater

Low Income: 54% or greater



U.S. EPA Region 5
Superfund GIS

Date of Map 9/26/02
Source of Map 1990 Census Database